

PCB IN TRANSFORMER SAMPLING AND ANALYSES

February 1999

Submitted To

Mr. David Hartshorn, CIH, CSP, CHMM
Industrial Hygienist
General Services Administration, PBS 6PMF
1500 E. Bannister Road
Kansas City, Missouri



Stevens & Associates, Inc.
Safety, Environmental and Laboratory Services



Stevens & Associates, Inc.

Environmental, Safety, Industrial Hygiene Services

February 18, 1999

Mr. David Hartshorn, CIH, CSP, CHMM
Industrial Hygienist
General Services Administration, PBS 6PMF
1500 E. Bannister Road
Kansas City, Missouri 64131-3088

RE: PCB in Transformer Sampling and Analyses
SAI Project No. 0647

Dear Mr. Hartshorn:

This is a report of the study SAI conducted in accordance with the contract number GS-06P-98-GXM-0078.

We enjoyed working with you on this project. If you have any questions, please do not hesitate to contact me.

Sincerely,

Ravi B. A.

B. A. Ravi, IH
Manager ES&H Services

Enclosure

PCB IN TRANSFORMER SAMPLING AND ANALYSES

February 1999

Submitted To

**Mr. David Hartshorn, CIH, CSP, CHMM
Industrial Hygienist
General Services Administration, PBS 6PMF
1500 E. Bannister Road
Kansas City, Missouri**

Prepared By

**Stevens & Associates, Inc.
P.O. Box 12481
Shawnee Mission, KS 66282
(913) 262-6190**

EXECUTIVE SUMMARY

Stevens & Associates, Inc. (SAI) was contracted by the General Services Administration (GSA) Heartland Region to conduct sampling and analysis of all valid liquid electrical transformers for polychlorinated biphenyl (PCB) presence. These transformers were retrofilled with non-PCB containing fluids. SAI coordinated the sampling effort through each Property Management Center by inquiring about the status of the transformer and setting up appointments to meet the designated personnel for obtaining samples.

Out of the estimated 68 transformers to be sampled and tested, samples were collected from only five transformers and sent for laboratory analysis. One transformer was sampled at [REDACTED]
[REDACTED] the 607 Hardesty, Kansas City, Missouri location. The point of contacts for the remaining locations indicated that the transformers were new and did not contain PCB-containing oil.

Based on the laboratory analytical results, the sample obtained at the 607 Hardesty, Kansas City, Missouri location contained PCBs at 70 parts per million (ppm), which is above the 50 ppm level set by GSA. All other samples were either non-detect or less than the 50 ppm threshold.

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Appendix 1.	Laboratory Analytical Results
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1.0 INTRODUCTION

Stevens & Associates, Inc. (SAI) was contracted by the General Services Administration (GSA) Heartland Region to conduct sampling and analysis of all valid liquid electrical transformers for polychlorinated biphenyl (PCB) presence. SAI coordinated the sampling effort through each Property Management Center by inquiring about the status of the transformer and setting up appointments to meet the designated personnel for obtaining samples.

Based on the telephone conversations with the points of contact, the majority of the transformers that required sampling had been replaced and they did not want us to sample the transformers. There were two transformers at the 607 Hardesty, Kansas City, Missouri location which had non-PCB labels on them and hence were not sampled. SAI believes these labels have been placed as a result of previous sampling but cannot verify the information without checking the records of previous sampling and testing activities or manufacturer's specifications.

The database provided by the GSA only identifies one transformer being present (which was sampled) in [REDACTED]. The other transformers present at the [REDACTED] is being serviced annually and GSA has testing data on the transformers. SAI did not perform any sampling according to instructions by Mr. Kevin Santee, Industrial Hygienist.

The samples were taken by Mr. Eric Pierce, Environmental Technician, and Mr. B. A. Ravi, Industrial Hygienist. All sampling was conducted under the presence of GSA maintenance personnel and/or electrical technicians for the respective buildings. The transformers were not de-energized prior to sample collection as the GSA personnel did not want to disrupt services to the buildings and moreover, the samples were collected through a tap, which did not pose any danger to SAI personnel. The tap was opened using a wrench to get enough sample and closed shut upon completion of sampling. Appropriate personal protective equipment (nitrile gloves and safety glasses) was worn during sample collection. The only waste generated were nitrile gloves and paper towels, which was used to wipe the ampule and the floor of oil droplets that had fallen on the floor during sample collection. The samples were collected in clean glass ampules, labeled, and delivered to the laboratory for analysis. A chain-of-custody form accompanied each group of samples. M. D. Chemical and Testing, Inc. located in Topeka, Kansas, analyzed the samples. The analytical method used was SW 846-8081 A and the detection limit was 10 ppm.

Table 1 summarizes SAI's sampling activities under this contract.

Table 1 Summary of Electrical Transformer Testing			Status/Action
Location w/ transformer	No. of transformers		
KC (Hardesty)	2	One sample was obtained from the transformer labeled PCB containing located in Tunnel #8. There were two transformers that were labeled as non-PCB containing which were not sampled. No leak was observed from the transformers.	

2.0 LABORATORY ANALYTICAL RESULTS

Table 2 discusses the analytical results for the transformers sampled at the three locations. A copy of the laboratory analytical results is included as Appendix 1. A copy of the Chain-of-Custody forms is included as Appendix 2.

Table 2 Laboratory Analytical Results									
Building Identification	Serial # or Location of Transformer and Date of Sample Collection	Results (parts per million or mg/kg)							
		Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	
Federal Center, Building #10 607 Hardesty Kansas City, MO	Westinghouse 3160697 1/19/99	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	70	

3.0 CONCLUSION/RECOMMENDATION

Only five of the 68 transformers were sampled. Of these only one had PCBs at more than 50 ppm.

Based on the analytical results, the liquid in the transformer at 607 Hardesty contains PCBs at 70 ppm. The fluid should be completely discharged and filled with a non-PCB containing fluid. A sample should then be obtained and tested for PCBs to ensure that no residual amounts of PCBs are still present in the transformer oil.

The designated points of contact(s) have provided information to SAI about the condition or status of the transformers. Any inconsistencies in the information provided should not be concluded as SAI's interpretation or findings of the study. SAI has made no effort to sample a transformer without prior approval from the Property Management Center.

APPENDIX 1

LABORATORY ANALYTICAL RESULTS

M.D. Chemical and Testing, Inc.

P.O. Box 19321, Forbes Field, Bldg 281, Topeka, KS 66619

(785) 862-3500 FAX (785) 862-5132

Sample Collected By: Eric Pierce

Lab Number: 983315

Received In lab: 11/11/98

Client: Steven's & Associates, Inc.

Date Reported: 11/16/98

P.O. Box 12481

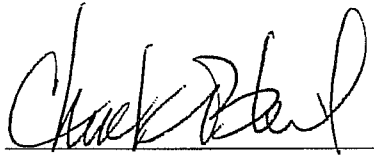
Project Name: G.S.A. Transformer Sample

Shawnee Mission, KS 66282

Project Number: 0647

ATTN: Eric Pierce

Analysis	Method	Result	Detection Limit	Units	Date Analyzed	Analyst
983315-01	Sample ID: 1/F964849					
Sampled: 11/10/98						
PCB OIL						
Aroclor 1016	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)	11/13/98	CB
Aroclor 1221	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1232	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1242	SW 846-8081A	15	(10)	mg/kg(ppm)		
Aroclor 1248	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1254	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1260	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		

Approved By: 

Lab Manager

M.D. Chemical and Testing, Inc.

P.O. Box 19321, Forbes Field, Bldg 281, Topeka, KS 66619
(785) 862-3500 FAX (785) 862-5132

Sample Collected By: Eric Pierce**Lab Number:** 983601**Received In lab:** 12/8/98**Client:** Steven's & Associates, Inc.**Date Reported:** 12/9/98

P.O. Box 12481

Project Name: G.S.A. Transformer - [REDACTED]

Shawnee Mission, KS 66282

Project Number: 0647**ATTN:** Eric Pierce

Analysis	Method	Result	Detection Limit	Units	Date Analyzed	Analyst
<hr/>						
983601-01	Sample ID: IA-80					
Sampled: 12/4/98						
PCB OIL						
Aroclor 1016	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)	12/9/98	CB
Aroclor 1221	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1232	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1242	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1248	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1254	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1260	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
983601-02	Sample ID: IA-82					
Sampled: 12/4/98						
PCB OIL						
Aroclor 1016	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)	12/9/98	CB
Aroclor 1221	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1232	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1242	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1248	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1254	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1260	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
983601-03	Sample ID: IA-84					
Sampled: 12/4/98						
PCB OIL						
Aroclor 1016	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)	12/9/98	CB
Aroclor 1221	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1232	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1242	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1248	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1254	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1260	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		

M.D. Chemical and Testing, Inc.

P.O. Box 19321, Forbes Field, Bldg 281, Topeka, KS 66619
(785) 862-3500 FAX (785) 862-5132

Sample Collected By: Eric Pierce

Received In lab: 12/8/98

Date Reported: 12/9/98

Project Name: G.S.A. Transformer - [REDACTED]

Project Number: 0647

Lab Number: 983601

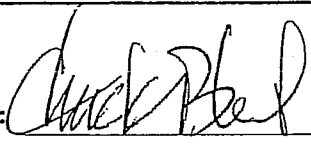
Client: Steven's & Associates, Inc.

P.O. Box 12481

Shawnee Mission, KS 66282

ATTN: Eric Pierce

Analysis	Method	Result	Detection Limit	Units	Date Analyzed	Analyst
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Approved By: 

Lab Manager

M.D. Chemical and Testing, Inc.

P.O. Box 19321, Forbes Field, Bldg 281, Topeka, KS 66619
(785) 862-3500 FAX (785) 862-5132

Sample Collected By: B.A. Ravi

Lab Number: 990158

Received In lab: 1/21/99

Client: Stevens & Associates, Inc.

Date Reported: 1/25/99

P.O. Box 12481

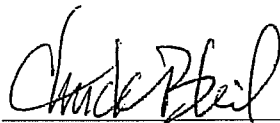
Project Name: PCB in Transformer Testing

Shawnee Mission, KS 66282

Project Number: 0647

ATTN: B.A. Ravi

Analysis	Method	Result	Detection Limit	Units	Date Analyzed	Analyst
990158-01	Sample ID: 3160697					
Sampled: 1/19/99						
PCB OIL						
Aroclor 1016	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)	1/25/99	CB
Aroclor 1221	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1232	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1242	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1248	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1254	SW 846-8081A	Not Detected	(10)	mg/kg(ppm)		
Aroclor 1260	SW 846-8081A	70	(10)	mg/kg(ppm)		

Approved By: 

Lab Manager

APPENDIX 2

CHAIN OF CUSTODY FORMS

913 / 862-3500 Topix Lab 913 / 482-1348 Lenexa Office

COMPANY NAME: Thomson and Thasteter

Address: PO Box 101

city/st./zip: Shawnee Mission, KS 66202

CONTACT: Eric Fivis

Telephone: 262-6409

Fax: (913) 262-1944

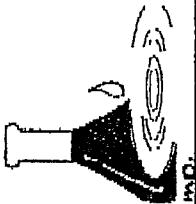
Project Name:

Project Number: 0647

P.O. Number:

Project Site:

Requested Due Date:



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[illegible]

Additional Remarks:

Relinquished by:

Date / Time:

Accepted by

Fair French

26/01/17

155/114

20 mi Can 11/10/98

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Eric Bender
Samplers Signature

Erik Perot
Sampler (pink)

FORBES FIELD, BLDG. 281, TOPEKA, KS 66619

Samplers (Print)

FORBES FIELD, BLDG. 281, TOPEKA, KS 66619

607 Hardesty.

M.D. Chemical & Testing, Inc.

913/862-3500 Topeka Lab 913/492-1346 Lenexa Office

"Quality Analysis with Care"

COMPANY NAME: Stevens & Associates

Address: P.O. Box 12487

City/State/Zip: Shawnee Mission, KS 66282

CONTACT: B-A-R

913-282-6190

913-262-1924

Project Name:

Project Number:

P.O. Number:

Project Size:

State of New Jersey
County of Essex
City of Newark

PCB in Transformation

0547

607 Hardisty

Benvised Date:

[illegible]

Additional Remarks:

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45203

Date: Time:

112079

Accepted by:

W. L. L. L.

研究.

Samplers Signature

B. A. Levi

FORBES FIELD, BLOO. 287. TOPEKA. KS 66619